

# US Army Ordnance Corps Hall of Fame Nomination

## NOMINEE DATA

**NOMINEE'S NAME:** Benedict Crowell

**RANK/GRADE:** Brigadier General, U.S. Army Reserve (Retired)

**TITLE AT RETIREMENT:** Brigadier General Benedict Crowell

**DATE/PLACE OF BIRTH:** 21 October 1869/ Cleveland, Ohio

**DATE RETIRED:** 1946

**DATE DECEASED:** 8 September 1952

**LAST DUTY POSITION:** Special Consultant to the Secretary of War

## PUBLICATIONS/CONTRIBUTIONS TO PERIODICALS:

Benedict Crowell and Capt. Robert Forrest Wilson, How America Went to War: An Account from Official Sources of the Nation's War Activities. 3 Volumes, New Haven Press, 1921.

Benedict Crowell, Munitions of War. 1,500 Page Treatise, publication information unknown.

Benedict Crowell, "The Decisive Decade: 1918-1928." The Journal of Army Ordnance. Volume 9, Sept-Oct 1928, pp. 73-75.

Benedict Crowell, America's Munitions 1917-1918: Report of Benedict Crowell the Assistant Secretary of War and Director of Munitions. Government Printing Office, 1919.

Benedict Crowell and Charles B. Murray, Iron Ores of Lake Superior. Penton Publishing Company, Cleveland, Ohio, 1927.

## SIGNIFICANT CITATIONS/AWARDS:

American Ordnance Association Major General C.C. Williams Gold Medal for Distinguished Ordnance Service

## OTHER HONORS:

1919 – 1946 Founder and President of the Army Ordnance Association

## SIGNIFICANT ASSIGNMENTS/POSITIONS:

1916		Appointed Major in the Officer's Reserve Corps
Nov 1916	Dec 1916	Served as a member of the Kernan Board of the War Department
June 1917	Nov 1917	Called to active duty in Ordnance Department
Nov 1917	1920	Appointed Assistant Secretary of War, Director of Munitions
1919	1946	President of the Army Ordnance Association
Jan 1931		Appointed Brigadier General in the Army Reserve
1941	1941	Headed the Crowell Committee to study ordnance personnel problems
1941	1945	Assigned as special consultant to the Secretary of War

### **MAJOR CONTRUBITIONS TO U.S. ARMY ORDNANCE**

Benedict Crowell was born on 21 October 1869 in Cleveland, Ohio. He attended Case Institute of Technology, and earned his Ph.B. in 1891 from Yale. In 1918 Yale conferred upon him a MA. Mr. Crowell was a vital player in creating and managing the industrial base during World War I. Of even greater importance was his role in drafting the National Defense Act of 1920 and his ceaseless efforts to prepare the industrial base for wartime production prior to 1941. His experience and expertise guided munitions, weapons systems, and logistical supply operations in two world wars. His contributions and publications are lasting to the Army Ordnance Department and our nation. His ideas of industrial preparedness remain the bedrock of our current system of relying on commercial firms to provide the majority of our military hardware.

Several positions and experiences established Mr. Crowell as an industrial leader before he joined the Army. Crowell worked for Otis Steel Co. as a chemical engineer. He was a mining engineer in Brazil, Mexico, and Alaska before starting Crowell & Little Construction Co in Cleveland. The knowledge he gained in the areas of material and engineering/development while performing his duties in these positions are indispensable to his next missions. Crowell was a prominent figure in the engineering and mining industry by the time he began his service to the United States.

In 1916 Crowell was appointed a Major in the Officer Reserve Corps. In November 1916 Major Crowell was appointed as a member of the Kernan Board authorized under the National Defense Act to conduct an investigation as to the "feasibility, desirability, and practicability" of government manufacture of arms, munitions, and equipment. The Kernan Board accomplished one of the first systematic surveys of American industry to determine their capability to produce military materiel. The board was not able to completely determine industrial capacity, but it was able to estimate the amount of time it would take to equip larger armies. As important, the Kernan Board was able to estimate the lead time to produce items. For example, they realized that it would take almost one year to produce and ship a light artillery shell. They recognized that some components had to be completed first and contracts had to accommodate industrial processes. As WWI continued it became obvious that industry had been optimistic about their capacity and speed. Major Crowell contributed to the Ordnance Corp both in his work on

surveying and inventorying American Industrial Capacity and in managing industry when it became clear that they could not meet their capacity estimates.

In 1917 Major Crowell was called to active duty in the Ordnance Corps. He began his service by serving on the General Munitions Board and utilizing his private expertise in steel production. The board's purpose was to exercise sufficient supervision over the distribution of government contracts to prevent competition among several purchasing agencies of the Government, to assist in acquisition of arms materials and manufacturing facilities, and to coordinate and establish precedence between the requirements of the U.S Government, allies, and necessary commercial and industrial activities. Each Bureau of the Army and our allies placed demands on commercial industry. The General Munitions Board attempted to manage supply, manpower, and energy. Unfortunately, the nation did not have laws to transform private industry into wartime, controlled industry, and the Munitions Board was unable to fully regulate the translation of requirements into materiel. Major Crowell excelled in his work with the steel industry and his efforts were rapidly recognized. In November 1917 he was appointed as the Assistant Secretary of War and Director of Munitions.

Serving as Assistant Secretary of War, Crowell was a significant catalyst in creating a wartime industry capable of producing mass amounts of munitions and providing transportation to a growing Army. In this capacity he made significant contributions to the Ordnance Corps. For a generation before WWI, American industry had begun to develop and expand, but the growth was from a purely local, unconnected, and unrelated manufacturing base. Crowell had seen the lack of direction, management, and prioritization during his service on the Kernan Board and the General Munitions Board. He recognized, and set about creating, the means of converting private industry to a managed state effort to support the war effort. In December 1917 many sectors of American industry were in paralysis. Ports were clogged, fuel was unavailable, raw materiel was blocked from getting to factories, and manpower was unavailable. Benedict Crowell took action to reorganize the War Department and exert control over the Bureaus. He assisted the General Staff in exerting its authority and he created the systems to establish requirements, set priorities, and match requirements to industrial capacity. In WWI Mr. Crowell's reach was pervasive. He directly influenced ammunition, aviation, optics, automotive, small arms, and artillery production. He oversaw the management of transportations systems and the construction of induction and training camps. In effect, Mr. Crowell was responsible for the management of wartime mobilization and he was, for the first time, able to effectively mobilize American industry. Mr. Crowell's duty, and one of his significant contributions to Ordnance, was his ability to build up America's wartime manufacturing capacity on a grand scale.

Technology had brought a new age of warfare and weapons systems needed updating. Once weapons were updated, ammunition also needed to be modified. As Director of Munitions, Mr. Crowell significantly contributed successful solutions to the Ordnance Department, working through numerous obstacles. In his book America's Munitions, 1917-1918, Mr. Crowell described several of the issues the Ordnance Department faced during mobilization for WWI. The publication shines light on Crowell's expertise on how to bring industry together to prepare for wartime, and his understanding of munitions that he contributed to this war effort. The detailed account of America's munitions struggles and achievements is

well known, and his role in these accomplishments are reported with becoming modesty in his writings.

One can present numerous issues that Crowell assiduously dealt with as Director of Munitions during this crucial time for the military. Some of the predicaments Crowell worked through as Assistant Secretary of War were motorization of artillery pieces. The whole movement towards motorization further complicated ordnance production. Crowell contributed to increasing the number of cannons needed for war in a short period of time. Before the war, industry could sustain a manufacturing capability of 55 guns per caliber per year. Effective planning quickly expanded the number of American gun-making factories from four to nineteen. Production rose to over 24,000 guns per year by 1918. While successfully increasing cannon production capacity, American industry also increased manufacture of field artillery carriages to mount the guns.

The United States was called upon by our Allies to produce the explosives and propellants that became so important to any modern army. Crowell significantly contributed to the following planning and implementation: expanded facilities for production, revived a diminishing personnel force and knowledge base to conduct this dangerous line of work, built up new manufacturing plants for making propellants and high explosives, and brought huge loading plants into existence. He was responsible for the construction of the Old Hickory explosives factory, which was built in one year and was, at the time, considered the largest industrial plant in the world.

As explosives and propellants increased the power and ranges of guns, the accuracy of a shot became critical. Development of sights and fire-control apparatus to aim guns was of central importance to the Ordnance Department. The most pressing issue concerning these apparatus was the optical glass. There was a limited amount of quality optical glass being produced in the U.S. at this time. Crowell was instrumental in organizing the manufacturing/development process for these apparatus and although all the difficulties were not solved, the U.S. had made great strides in production when the war ended, and requirements would have been met by 1919.

Crowell also was a great contributor in ordnance efforts to increase the amount of small arms ammunition. Small arms .30 caliber ammunition requirements were initially estimated at needing 100,000,000 cartridges per year at the start of WWI. Manufacturers actually produced 3,507,023,300 billion small arms cartridges in the war period. This difficult process was enlarged in time to take care of every demand of the American Army for small arms ammo and no military operations were held up by lack of ammunition. Crowell's management and planning focus enabled the Ordnance Department to meet this unprecedented increase.

In previous wars, battles were fought more statically. Now that artillery pieces needed to travel over rough terrains, tanks became an essential vehicle for combat soldiers. Up until WWI, there was little accurate information regarding tanks in the U.S. There were hazy design plans that started coming from Europe about the different designs that would be needed on the battlefield. Crowell was a principal contributor to the joint decision made with the French and

British to produce two sizes of tanks for battle. He recognized that conditions on the battlefield required medium and light tanks.

In addition to the accomplishments above, Mr. Crowell participated in the development, manufacture, and acquisition of other necessities of war such as: the modified Enfield rifle, trench warfare materials, soldiers' armor and helmets, bayonets, knives, machine guns, service rifles, pistols, and revolvers etc. His footprint was not only in the field of ordnance, but chemical warfare, construction, the signal corps, the aircraft program, quartermaster activities, and engineering. It is important to understand that during WWI, warfare was forever changed by aerial advancement and motorization. Mr. Crowell played a large part in obtaining the rapid mobilization of numerous pieces and types of equipment and munitions.

Mr. Crowell's WWI contributions to Ordnance are significant enough to justify his induction into the Ordnance Corps Hall of Fame, but his actions between 1919 and 1939 were even more significant in ensuring that the Ordnance Corps and industry was prepared for World War II.

Mr. Crowell resigned from his position as Assistant Secretary of War in 1920. Before that he helped frame the National Defense Act of 1920. Among other things, the Act made the Assistant Secretary of War responsible for peacetime industrial mobilization. Crowell was able to establish in statute the premise that in peacetime the Army had to maintain a close relationship with industry. This would allow the Army to create the foundation to rapidly surge manufacturing from peacetime levels to those required in time of war. In addition the Act suggested that the Army needed to have industrial mobilization plans. The Assistant Secretary of War was responsible for matching wartime requirements with industrial capacity. The act represented a first step toward recognizing that modern warfare, with its demands for huge mechanized ground forces armed with sophisticated weapons and the ability to move over large fronts, demanded that the entire national economy be harnessed into this effort. Through his influence in establishing these elements of the National Defense Act of 1920, Mr. Crowell made another significant contribution to Ordnance that would have direct results during WWII industrial mobilization.

In addition to these certain accomplishments Mr. Crowell founded the Army Ordnance Association (AOA) and became the organization's first president in 1919. He served as President of AOA for 25 years until 1946. Upon its creation, the Association announced its principal concern was industrial preparedness. The Ordnance Association came on the scene even before the National Defense Act of 1920 therefore making it the first association to truly emphasize the relationship and importance of private industry to national defense. Throughout the interwar years, and in face of hostility and pervasive pacifism, Mr. Crowell guided the AOA and created an environment for cooperation and planning between the government and industry. He led a small band of industrialists in ensuring that industrial preparedness be given the peacetime considerations its wartime importance demands. Such a philosophy and the action of the Association may have induced DuPont to maintain an explosives production capability when the government stopped all orders. DuPont and other ammunition producers were ready and trained to begin industrial expansion when the nation called in the late 1930s and early 1940s.

The AOA clearly assisted in developing military technology, improved defense management, and established a science-manufacturing-government team. After its development, society soon realized the value of private, non-profit organizations for the more intimate advancement of its concerns. In creating and then leading the American Ordnance for 25 years, Mr. Crowell made significant contributions to the Ordnance Corps.

In recognition of his continuing contributions, on 23 January 1931 President Hoover appointed Mr. Crowell as a Brigadier General in the Army Reserve. The promotion had been delayed since the early 1920s when Mr. Crowell had, in a wave of anti-industrialist fervor, been indicted for war profiteering. Mr. Crowell was eventually cleared of all charges, but his accomplishments in the AOA are even more significant given the anti-industrial and pacifist mood of the country.

Mr. Crowell demonstrated his dedication once again when called our nation was needed to dismantle Hitler's evil regime in WWII. In 1939, prior to the United States involvement in WWII, General Crowell was called to Washington D.C. to conduct a survey of the War Department Defense program. One of the key recommendations of that panel was to encourage the Educational Order system. Educational Orders were small orders of key materiel that were placed with various private firms. The intent was to give them the experience and tools to quickly surge to wartime production levels. The concept worked extremely well and was a key facilitator of industrial mobilization in 1940 and 1941. In 1941 another Crowell committee was formed to study ordnance civilian personnel problems. While going against the wishes of the Chief of Ordnance, recommendations presented by Crowell and his committee were signed into regulations and were instrumental in managing Ordnance personnel across the nation. The Committee assisted in established standard wage and price controls that were applied to all Ordnance contracts. Crowell was also assigned as a special consultant to the Secretary of War during WWII. He traveled to Washington DC every week during WWII to consult and advise the Secretary of War on management and industry issues.

In addition to his service to the Army, Mr. Crowell was President of the National Rifle Association, a member of the American Institute of Mining and Metallurgical Engineers, the Mining and Metallurgical Society of America, Lake Superior Mining Institute, Iron and Steel Institute, Canadian Mining Institute, Cleveland Historical Society, Ohio Coal Code Authority, and was the Director of the National Emergency Council for Ohio.

Over the course of thirty years Mr. Crowell gave his time and intelligence freely and was an indispensable resource in the advancement of industrial development and preparedness. His work was critical to the victories of WWI and WWII. The significance of his contributions to Ordnance was recognized by his contemporaries. For his contributions and excellent leadership, he received the Major General C.C. Williams Gold Medal for Distinguished Ordnance Service, the highest honor of the Army Ordnance Association. The directors of the association unanimously awarded the medal to Crowell in tribute to his outstanding service to the Nation and to the Army. His contributions to the Ordnance Corps crossed all lines to include planning, industrial preparedness, education, plant construction, aviation, and personnel management.

Benedict Crowell's contributions are mirrored in the 21<sup>st</sup> centuries war planners who strive to create, maintain, and supply the most sophisticated munitions from a readied standpoint. Mr. Crowell made the Ordnance Department and the War Department realize that in order to win wars, the Army must prepare in peacetime, be ready for possible contingencies, and build up and sustain an industrial base. BG Crowell's contributions were significant in 1917-1918, throughout the Interwar period, during all of WWII, and remain important today. He deserves to be honored in the Ordnance Corps Hall of Fame.